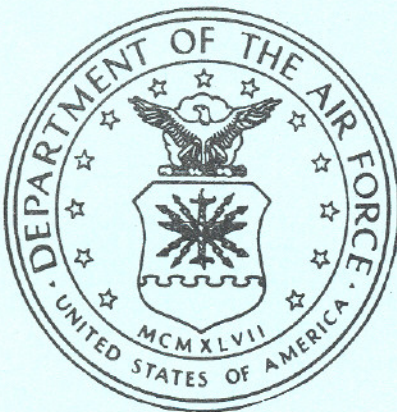
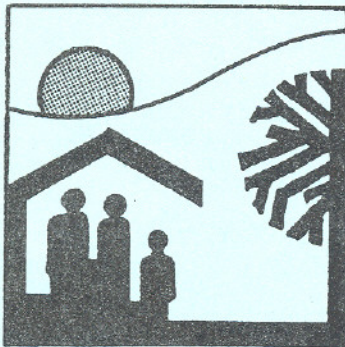


DMSP-83-0075



# Environmental Impact Analysis Process



## ENVIRONMENTAL ASSESSMENT ADDITION/ALTER

Defense Meteorological Satellite Program (DMSP)

Command Readout Station (CRS)

Fairchild Air Force Base, Washington

JULY 1983

DEPARTMENT OF THE AIR FORCE



ENVIRONMENTAL ASSESSMENT  
ADDITION/ALTER  
DEFENSE METEOROLOGICAL SATELLITE PROGRAM (DMSP)  
COMMAND READOUT STATION (CRS)  
FAIRCHILD AFB, WASHINGTON

JULY 1983

Prepared by: DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS SPACE DIVISION  
ENVIRONMENTAL PLANNING DIVISION  
DIRECTORATE OF CIVIL ENGINEERING



FINDING OF NO SIGIFICANT IMPACT (FONSI)  
PROPOSED ADDITION/ALTER  
DEFENSE METEOROLOGICAL SATELLITE PROGRAM (DMSP)  
COMMAND READOUT STATION (CRS)  
FAIRCHILD AIR FORCE BASE, WASHINGTON

DESCRIPTION OF THE PROPOSED ACTION

Introduction

The U.S. Air Force, Headquarters Space Division proposes to construct a 11,000 square foot building to house computers and electronic equipment, and acquire an additional 5.5-6.0 acres at the Fairchild AFB DMSP Command Readout Station (CRS) in order to modify and upgrade the existing facility. The proposed action will also provide a backup DMSP Command and Control Center (CCC) co-located with the Fairchild CRS.

Proposed Action And Need

The proposed action will modify and upgrade the Fairchild CRS which receives stored data from tape recorders on board the DMSP satellites and relays this data over a communication satellite link to the Air Force Global Weather Central at Offutt AFB, Nebraska as well as Fleet Numeric Oceanographic Center at Monterey, California. After these modifications and upgrades, the Fairchild CRS will be able to operate as a backup DMSP CCC should the primary CCC at Offutt AFB fail for any reason.

ENVIRONMENTAL EFFECTS

Topography/Geology

The movement of 2,000 cubic yards of earth required for construction of the proposed building, access road and parking lot will not significantly alter existing landforms.

Flora/Fauna

No threatened or endangered plants or animals will be affected by the proposed action.

Air Quality

Regional and local air quality will not be significantly affected by either the construction or operation of the proposed action.

Noise

Noise impacts will be limited to those normal associated with construction and will be only temporary.

Population

No permanent population increase is anticipated from the proposed action. Should the primary CCC fail there may be a temporary increase of up to 100 operational personnel at the Fairchild CRS.



Socioeconomic

There will be only minimal positive impacts to the local economy from the construction of the proposed action.

Cultural/Historic Resources

No cultural/historic resources will be impacted by the proposed action.

Hazardous Waste

The proposed action will increase the quantity of two types of hazardous waste (waste motor oil and waste engine coolant) already generated by current operations at the site. It will also generate a new hazardous waste (emergency eyewash/shower water) but only on a contingency basis. All hazardous waste generated on the site will continue to be disposed of through Defense Property Disposal Office (DPDO) channels in accordance with local, state and federal regulations.

Electromagnetic Radiation

The proposed action will not increase or cause any additional electromagnetic radiation to be emitted from the site.

FINDING

In light of the above considerations, a Finding Of No Significant Impact is made for the proposed action.

An Environmental Assessment, dated July 1983, which analyzes the proposed action is on file at:

HQ Space Division  
P.O. Box 92960  
Worldway Postal Center  
Los Angeles, Calif. 90009  
Attn. Mr Robert Mason, SD/DEV



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## I. PURPOSE OF AND NEED FOR ACTION

The Air Force proposes to modify and upgrade the Defense Meteorological Satellite Program (DMSP) Command Readout Station (CRS) near Fairchild Air Force Base, Washington. In general, plans call for construction of one building, and installation of associated technical support and utility requirements.

The mission of the DMSP is to (1) provide to the Air Weather Service global meteorological data in support of worldwide military operations; (2) advance spaceborne meteorological sensing technology to meet changing DOD requirements; and (3) provide DOD tactical support through direct transmission of local area weather data. To perform this mission DMSP has satellites in 450 nautical mile (nm) sun-synchronous polar orbits; each carrying a payload of meteorological sensors. Each satellite collects data continuously, scanning a crosstrack swath 1,600nm wide.

The DMSP satellites are commanded and controlled through CRSs located at Fairchild AFB, Washington and Loring AFB, Maine which receive stored data read from tape recorders on board the spacecraft. This data is relayed over a communications satellite link to Air Force Global Weather Central at Offutt AFB, Nebraska and Fleet Numeric Oceanographic Center at Monterey, California. Recorded data not relayed in real time is played back port-run. Real-time data is directly transmitted to Air Force and Navy ground terminals and Navy carriers located throughout the world.

Each CRS site presently consists of a fixed 40-foot parabolic antenna subsystem protected by a rigid radome, and an operations building containing radio frequency, ground communications, and computerized command and control

subsystems. The basic functions performed in the operations building include:

- a. Supervision and communication with tracked satellites through the use of manned electronic consoles.
- b. Acquisition and relay of data from tracked satellites.
- c. Maintenance of the electronic and data processing apparatus.
- d. Logistical support storage for the operation of the electronic control and data processing systems.
- e. Supervision and administration of the operating systems and personnel.
- f. Personnel supporting services for continuous operations.
- g. Environmental conditioning and utilities.
- h. Operator training.
- i. Documentation services.

The facility operates 24 hours a day, 7 days a week and 365 days a year.

The Command and Control Center (CCC) for DMSP is located at Offutt AFB, Nebraska. The 1000th Satellite Operations Group is responsible for the on-orbit command and control function at the CCC. However, the CCC facility at Offutt AFB is vulnerable to power and equipment air conditioning failures, sabotage and natural disasters. Under the current configuration one of these types of events could lead to loss of the CCC or the communication link between the CCC and CRSs; thereby, negating the command and control capability. Loss of command and control capability would result both in the inability to maintain satellite orbital control and failure to meet mission requirements of providing meteorological data to DOD users.



Therefore, as part of this project, a backup CCC will be co-located with the Fairchild AFB CRS. This proposed action will significantly enhance survivability of the command and control function by providing an alternative satellite command and control capability should the primary at Offutt AFB fail. The co-location of the backup CCC with one CRS will eliminate the effects of highly vulnerable communications link failures between the CCC and one CRS.

## II. PROPOSED ACTION AND ALTERNATIVES

### A. Proposed Action

The Air Force proposal to modify the Fairchild AFB CRS to upgrade the facility and provide a backup CCC will require obtaining an additional 5.5-6.0 acres and construction of a 11,000 square foot building to house the complete complement of command and control consoles, data processing equipment, support equipment and systems, and operational personnel. An attached building will house emergency diesel generators, an uninterruptible power system (UPS) and an oil fired boiler for space heating.

There are currently 44 military assigned to the Fairchild CRS as members of Detachment 1, 1000th Satellite Operations Group. There will be no change to site assigned personnel levels. However, if the backup CCC is activated due to failure of the primary CCC, personnel from Offutt AFB will supplement site personnel.

Fairchild AFB is located in eastern Washington approximately 7 miles west of the City of Spokane in the County of Spokane. The Fairchild CRS is located in a rural area 8 miles north of the base (Figure 1). The CRS compound is on approximately 39 acres originally leased from the State of Washington. It now seems apparent that the land on which the CRS is located



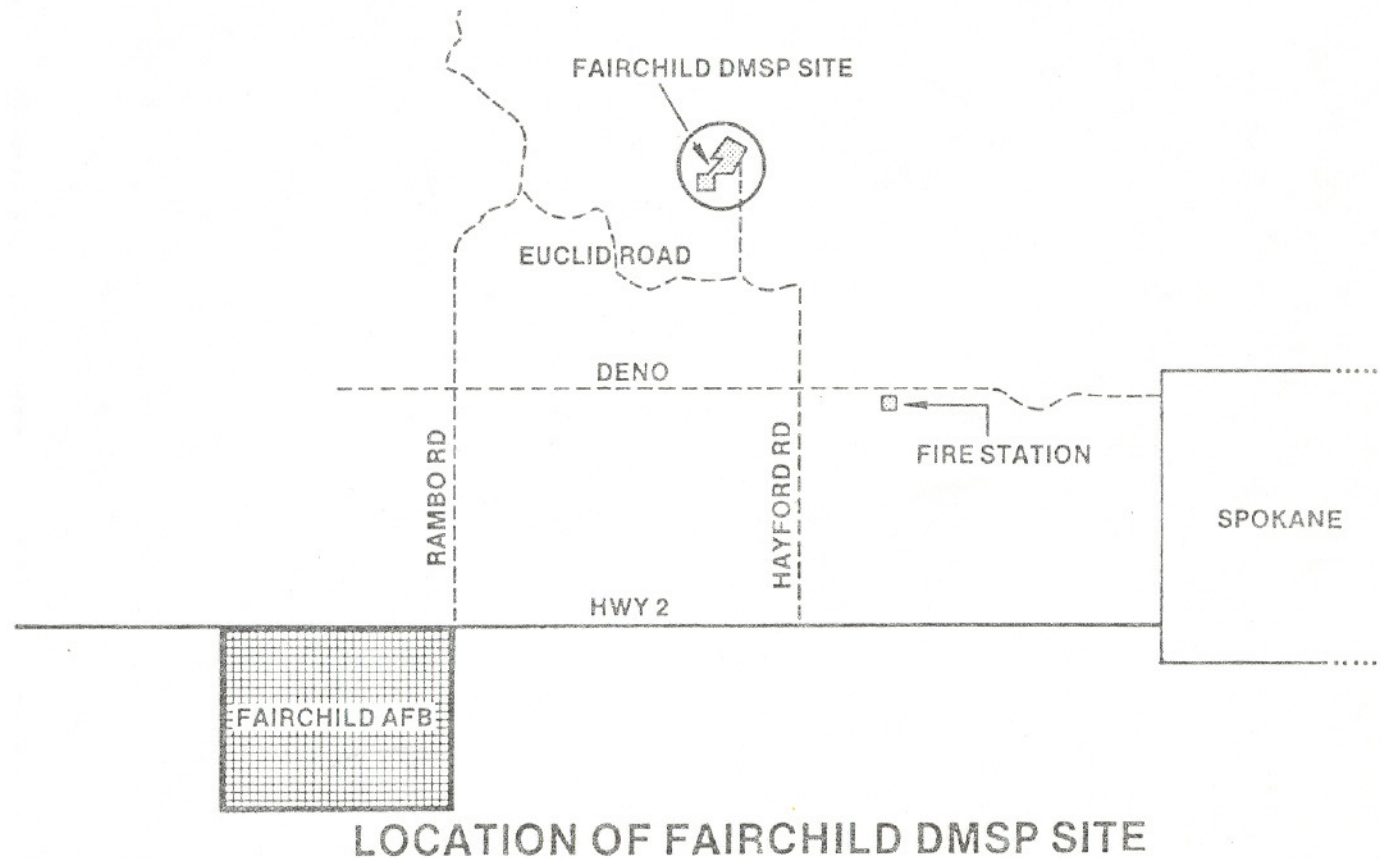
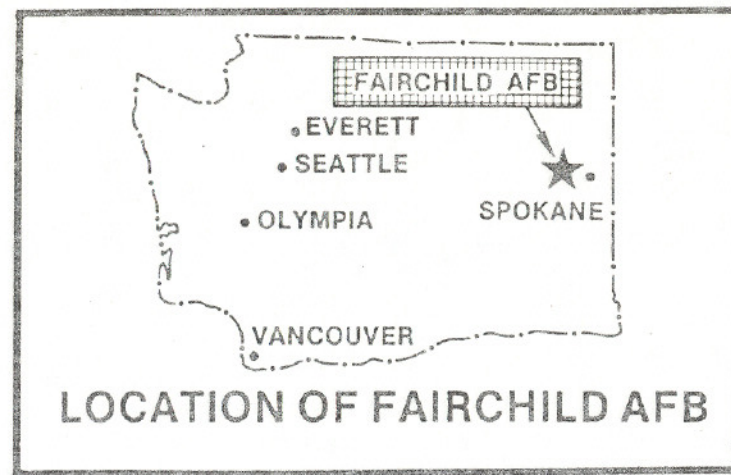


FIGURE NO. 1



was part of a larger section of land recently sold by the State to a private party. Informal discussions with the Spokane County Tax Assessor's Office indicates that a stipulation of the sale was a perpetual lease of the CRS compound to the Air Force. The Air Force has requested that the U.S. Army Corps of Engineers prepare a Real Property Planning Report to formally establish the legal owner and any lease agreements stipulations or easements which affect the the CRS compound.

Figure 2 depicts the layout of the existing CRS compound, the location of the proposed 11,000 square foot building and the additional land which must be acquired. The proposed site for the building and acquisition of the additional land will provide maximum flexibility for expansion of the CRS as required by future missions or to allow for future upgrading of existing capabilities.

The proposed site of the building will require extension of the access road and utilities, and a 12 car parking lot. In addition, the acquisition of the 5.5-6.0 acres will require the extension of the security fence line as well as relocation of site lighting.

#### B.Alternatives

Mission requirements demand extreme Northeast and Northwest locations for dedicated DMSP sites because this allows maximum contact with a polar orbiting spacecraft. Other locations were studied for the backup CCC and the most cost effective alternative was upgrading the existing DMSP facilities. All other sites would require extensive and expensive construction. Therefore, the alternative of using other sites has been rejected for mission and economic reasons.



4. PROJECT TITLE

ADD/ALT DMSP COMMAND READOUT STATION (CRS)

5. PROJECT NUM

DMSP COMMAND READOUT STATION (CRS)

Typical Work:

Technical Building (11,088 SF)

Backup Power Plant

Parking Lot

Extend Existing Utilities



100 200  
APPROX SCALE - FEET

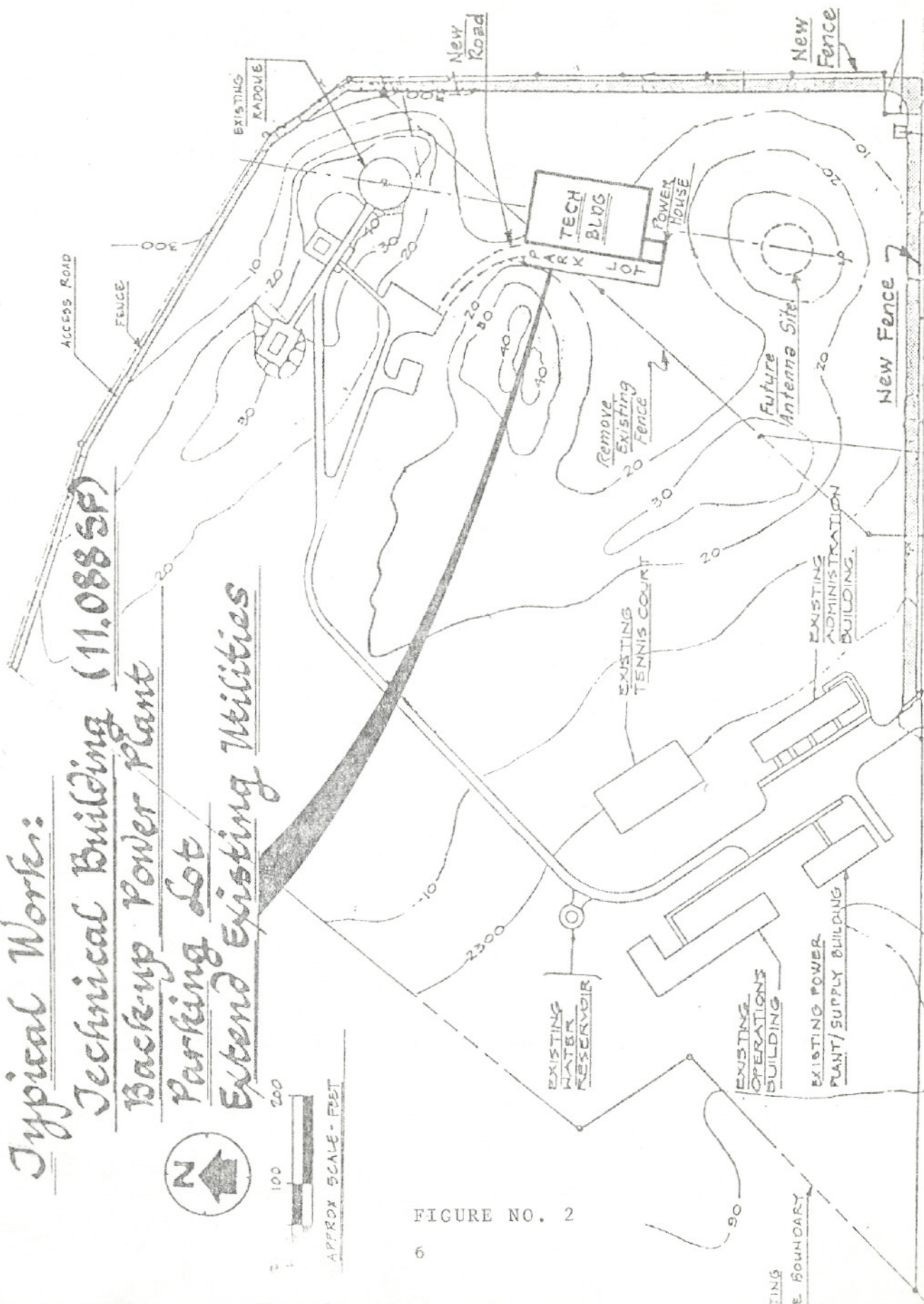


FIGURE NO. 2



#### C.No Action

By not upgrading the existing DMSP facility at Fairchild AFB, the Air Force would continue operating without a backup CCC. If the primary CCC fails, there would be no DMSP command and control capability. Given the great importance of the DMSP mission in support of worldwide military operations, it is of utmost importance to upgrade this facility, providing a backup CCC and eliminating the effects of the loss of the highly vulnerable communications link between the CCC at Offutt AFB and at least one CRS.

### III.ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES

The discussion of the environmental impacts includes both construction and operational related impacts.

#### A.Proposed Action

##### Natural Environment

##### 1. Topography/Geology

The Fairchild CRS is located in the basalt deposits of eastern Washington. The overburden is a coarse, granular material ranging from 2 to 5 feet in depth throughout the site and is unsuitable for forestation. The area is well drained and erosion is not a problem.

Approximately 2,000 cubic yards of earth will be disturbed during construction of the building, access road, utilities and parking lot. Extension of the security fence and lighting will result in only minor disturbance to the soil. The construction contractor shall be required to utilize erosion protection measures during earth moving and grading operations.

Security requirements will require that vegetation within the clear zone (30 feet on each side of the fence and around the building) be



controlled. However, this will not require grading down to mineral soil; therefore, erosion will not be a problem.

## 2. Flora/Fauna

The site is essentially all disturbed land within the existing security fence. The area is covered by native and introduced grass/weed species and small native shrub species. The additional area proposed for acquisition has been subjected to less disturbance in the past and is covered by native and introduced grass/weed species, small native shrub species and small pine trees. Construction of the building, access road, parking lot and security fence and associated clear zones will result in the removal of a small percentage of the existing vegetation. However, those areas not directly impacted by construction of security requirements will be left in their existing semi-natural state.

No threatened or endangered plants or animals are located on or near the site. The closest endangered species are the American Peregrine Falcon and the Arctic Peregrine Falcon which are found at the Turnbull Game Refuge located approximately 30 miles southwest of the site.

## 3. Air Quality

The County of Spokane has been designated as a federal non-attainment area for particulates and CO. Construction of the building, access road and parking lot will result in minor temporary increases in emissions of CO from construction vehicles and fugitive dust from grading and earth moving operations. The construction contractor shall be required to control dust during grading and earth moving operations with the application of water.

The primary power source for operation of the site is electricity



supplied by the Washington Water and Power Company. Emergency backup power will be provided by three diesel generators capable of producing a total of 750KVA. This backup system will be used only in the event of a commercial power failure. The diesel generators will meet all applicable local, state and federal regulation. These generators will cause a minor increase in the total emissions within the area; however, due to the emergency backup nature of the generators the increase in total emissions will be minimal.

Space heating within the proposed building will be provided by an oil fired boiler. An energy audit will be completed during design of the building to ensure that waste heat from the operational equipment is used to the maximum extent possible in order to properly size the boiler. The boiler will meet all applicable local, state and federal regulations. The emissions from the boiler will increase total emissions in the area only slightly.

#### 4.Noise

There will be a temporary increase in noise during construction. However, the noise level is not expected to be significant as there are no residences closer than 1 mile to the site and due to the temporary nature of construction activities.

#### Man-Made Environment

##### 1. Population

There will be no permanent workforce increase associated with the proposed action. If the primary CCC should fail the Fairchild CRS workforce may be supplemented by up to 100 additional operational personnel to meet mission requirements; bring the total workforce up to a maximum of 150. Any increase in the workforce due to failure of the primary CCC is expected to



be temporary. It has been determined that the site could support up to 200 persons per day, with the only limiting factors being water and sewer capacity (the water supply system can support up to 200 person per day; the sewer system can support up to 250 per day). Any temporary increase would involve only the operational personnel themselves and not their dependents. The temporary influx of personnel is expected to result in only slight positive impacts to the local economy.

No increase in local population is expected from construction of the proposed action due to the limited size of the project, the population of the County of Spokane (360,000 in 1982, Spokane Chamber of Commerce), and the unemployment rate of 16% in the area.

## 2. Socioeconomic

Since there is no permanent workforce increase associated with the proposed action the only impacts resulting from the action are the positive impacts associated with construction. Because of the limited size of the proposed action the positive socioeconomic impacts will only be slight.

## 3. Cultural/Historic Resources

Based on a record search conducted by the Spokane City/County Historic Preservation Office, there are no cultural/historic resources which will be impacted by the posposed action.

## 4. Hazardous Waste

The proposed action will cause two type of hazardous waste to be generated on a routine basis (waste motor oil, waste engine coolant) which are currently generated at the site by existing operations; and an additional hazardous waste type (emergency eyewash/shower water) which is not currently generated on site but which will only be generated on a

contingency basis.

Both the waste motor oil and waste engine coolant will be generated by routine maintenance of the three diesel generators. Due to their limited use maintenance is performed only once a year. The waste oils are drummed and transported to a steam plant for use as fuel oil. The waste coolants are drummed and disposed of through existing Defense Property Disposal Office (DPDO) channels to a Class 1 Landfill. The methods of disposing of these two waste type have been established for existing operations at the CRS. The proposed action will only increase the quantity of waste generated.

The emergency eyewash/shower water will be generated on a contingency basis only. The uninterruptible power system (UPS) is a series of wet cell batteries. An emergency eyewash/shower is required. The eyewash/shower drains to a sump. If the eyewash/shower is used the water will have to be tested to determine if it is hazardous or non-hazardous. If it is hazardous it will be drummed and disposed of through DPDO channels to a Class 1 Landfill. If it is non-hazardous it can be disposed of through the sanitary sewer.

#### 5. Electromagnetic Radiation

No new electromagnetic radiation will be generated by the proposed action. However, due to the close proximity of the proposed building to the existing antenna (approximately 200 feet) it will be necessary to measure the radiation level at the proposed location both prior to and after construction.



The characteristics of the antenna are presented in Table 1. Theoretical radio frequency radiation hazards have been computed in accordance with Technical Order 31Z-10-0, Electromagnetic Radiation Hazards and AFOSH Standard 161-9.

Table 1: Existing Antenna Characteristics

Diameter (D)	40 ft. (12.2 meters)
Centerline Height (above ground)	30 ft. (9.2 meters)
Frequency (f)	1.75 GHz
Maximum Power	150 Watts
Antenna Gain (G)	43.5 dB
Wavelength ( $\lambda$ )	.171 meters
Half-Power Beam Width (e)	.98
Look Angle (Elevation)	0° to 90°
Look Angle (Azimuth)	360°
Near Field Distance ( $D^2/4\lambda$ )	712 ft. (217 meters)
Far Field Distance ( $D^2/\lambda$ )	2,848 ft. (868 meters)
Reference Distance ( $2D^2/\lambda$ )	5,697 ft. (1,737 meters)
Power Density at Reference Distance	.009 mw/cm <sup>2</sup>

Near Field corrections were made by assuming an illumination factor of  $1-r^2$  for the antenna. As a result, calculated on-axis power density levels are shown in Table 2.

Table 2: Existing On-Axis Power Density Levels

<u>Distance (meters)</u>	<u>mw/cm<sup>2</sup></u>
17	0.25
35	0.26
69	0.28
104	0.32
139	0.35
174	0.37
217	0.32
347	0.18
695	0.05
868	0.04
1042	0.02
1392	0.01
1737	0.01

This antenna transmits a highly directional main beam within the elevation and azimuth angles noted. This main beam contains a high percentage of the antenna's radiated power. However, radiated power is also developed in side lobes which do reach ground levels in the vicinity of the antenna. The maximum ground level concentration is calculated using T.O. 31Z-10-4. For this antenna, the concentration does not exceed 0.03 mw/cm<sup>2</sup>. However, should the main beam intersect the ground, power levels will be much higher.



B.No Action

There are no environmental impacts associated with the No Action alternative. The minor impacts resulting from the proposed action would not occur.

IV. AGENCIES AND PERSONS CONTACTED

Department of the Air Force

Det 1, 1000th SOG

LtCol Hank Janosky

92 CSG/DE

Capt Joe Horne

Sgt Curtis Cleary

Mr Loren Findley

Mr Jim Hall

Mr Lynn Plaggemeier

County of Spokane

Tax Assessor

Mr George Britton

Planning Department

Mr Gary Fergen

Mr John Mercer

City/County of Spokane

Historic Preservation Office

Ms Janice Rutherford

Spokane Regional Planning Conference (OMB A-95 Regional Clearinghouse)

Mr Ken Olson